

of the thigh the crural vein passes into the cavity of the pelvis along with, but separated from the artery by the pectineus muscle. Having reached the pelvic cavity it terminates as follows:—So soon as the crural vein enters the pelvic cavity, it divides into four branches (Pl. XII. fig. 7), two of which pass backwards and two forwards. Of the two former, one, which may be named the superficial branch, lies on the lower surface of the posterior lobe of the kidney, and passes backwards as far as the posterior extremity of that lobe, where it unites with the second or deep retrocurrent branch. The second or deep branch follows a parallel course, but instead of lying in contact with the lower surface of the kidney, is placed between the upper surface of that organ and the upper wall of the pelvis. It extends backwards as far as the posterior extremity of the kidney, where it inosculates with the superficial branch of the same side, as well as with the trunk formed by the union of the superficial and deep branches of the opposite side. By means of the last-named inosculation a venous arch is formed, the summit of which is directed backwards. This arch lies in contact with the posterior extremities of the kidneys, and is crossed by the ureters. It receives five or six separate branches (hypogastric), which take their rise in the inferior caudal region. From the most projecting point of the arch a single large mesial vein arises and passes forwards between the layers of the meso-rectum. This trunk (the coccygo-mesenteric of Neugebauer<sup>1</sup>) forms the commencement of the portal vein, which in the Penguins, as in other birds,<sup>2</sup> communicates freely with the veins of the legs.

Of the two branches derived from the crural vein which pass forwards, one is considerably smaller than the other. It passes forwards, lying in contact with the lower surface of the anterior renal lobe, and close to the anterior extremity of the latter unites with the second of the anterior branches. The latter vein likewise passes forwards in contact with the lower surface of the anterior lobe of the kidney, but lies internal to the first branch. Opposite the anterior border of the kidney these two branches unite to form a single trunk, which almost at once unites in the middle line with its fellow of the opposite side of the body to form the vena cava inferior. Both the anterior and posterior branches of the crural vein receive numerous branches from the substance of the kidney.

#### *The Inferior Vena Cava.*

This vein, formed as above described, passes forwards in company with the aorta as far as the right lobe of the liver, through the substance of which it passes. After receiving the hepatic veins, the vena cava emerges from the apex of the right hepatic lobe, and almost at once enters the right auricle of the heart.

*The Hepatic Veins* open into the vena cava inferior before that trunk escapes from the apex of the right hepatic lobe.

<sup>1</sup> *Systema venosum Avium*, Nova Acta Acad. Nat. Curios, tom. xxi.

<sup>2</sup> Nicolai, *Isis*, 1826, p. 414.